



GCSE – LEGACY

4342/01



COMPUTER SCIENCE
UNIT 2: Solving Problems Using Computers
Question Paper

THURSDAY, 17 MAY 2018 – AFTERNOON

2 hours

INSTRUCTIONS TO CANDIDATES

You will need a computer with a functional copy of Greenfoot pre-installed.

Carry out **all** tasks and make sure that you check your work carefully to ensure that the work you produce is accurate and correct.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Save your work regularly.

INFORMATION FOR CANDIDATES

The total mark available for this unit is **30**.

The quality of written communication will be assessed in task **3**.

Answer Task 1, Task 2 and Task 3.**Task 1**

[6]

A draft design for an HTML webpage to advertise a new smart technology website is shown below.

Home Network Installation

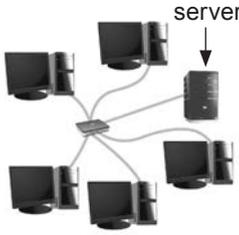
HD video and low latency gaming

There's no doubt installing a wired network to complement the wireless network could improve throughput and lower the latency time of your games.

Get a quote for a home network installation at our website here:
www.networkmyhome.co.uk

The design has been improved using various HTML tags to provide the formatting shown below.

Home Network Installation



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Get a quote for a home network installation at our website here:
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Open the file *Network.txt* using a basic text editor. Insert the required HTML tags needed to format the page to match the improved design.

The image you require is called *networkpic.jpg*
 Save your completed work as *FinalNetwork.txt*

Task 2

[9]

An algorithm is required to calculate the discount a customer earns when buying multiple books from a shop.

A discount of 10% can be earned. The discount is awarded if the total price of books purchased is over £50 or the mean price of books purchased is more than £10 per book.

Using a basic text editor, write an algorithm, which:

- inputs the number of books being purchased
- inputs the price of each book being purchased
- outputs the total price of the books
- outputs the mean price of all books (*total price ÷ number of books*)
- outputs if a discount has been earned
- outputs the amount of discount

A partial example of the **input** and output of the algorithm is shown below.

Input number of books being purchased: **3**

Input price of book in £: **15**

Input price of book in £: **9**

Input price of book in £: **12**

Total Price: £ 36.00

Mean Price: £ 12.00

Discount Earned.

Amount of discount: £ 3.60

Save your completed algorithm as FinalDiscount.txt

Task 3

[15]

- (a) Open the WJEC Clouds scenario in Greenfoot.
- (b) Populate the world with a **plane**, a **sun** and at least two **cloud** objects.
- (c) Edit the **cloud** objects so that they turn and move at random.
- (d) Edit the program code to make the **plane** move in the direction of the arrow keys when pressed.
- (e) Edit the **plane** code so that it “collects” a **cloud** when they collide (removes the **cloud** from the world).
- (f) Add a sound which will play every time the **plane** “collects” a **cloud**.
- (g) Add a counter. Edit the **plane** code so that the **counter** gains ten points each time a **cloud** object has been “collected”.
- (h) Edit the **cloud** code so that a cloud “disappears” from the world if it collides with the **sun** (removes the **cloud** from the world).
- (i) Edit the **cloud** code and the **counter** code, if necessary, so that the **counter** loses five points if the **cloud** collides with the **sun**.
- (j) Save your completed world as FinalWJEC Clouds

**END OF PAPER**